INTRODUCTION

1
2
3 **This page intentionally left blank.**

INTRODUCTION

Contents

1
2
3 **This page intentionally left blank.**

INTRODUCTION

This *Introduction* contains background information to help the reader understand the content and context of the *Draft Hanford Facility Dangerous Waste Permit*. This information is organized under the following headings:

1. Regulatory Framework
2. Permitting Framework

1 REGULATORY FRAMEWORK

Established in 1943, the original mission of the Hanford Site was to produce plutonium for national defense. Such production ended at Hanford in 1988. However, after more than 40 years of plutonium production, significant amounts of waste were created. In 1989, with the cessation of plutonium production, Hanford's mission shifted to environmental cleanup and waste management operations supporting this cleanup. From both a regulatory and technical standpoint, Hanford Site cleanup is one of the largest, most complex environmental projects in the United States (U.S.).

1.1 Key Regulatory Statutes

At the Hanford Site, two major regulatory statutes are key to the implementation of cleanup—the *Resource Conservation and Recovery Act* (RCRA), and the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). Both must be considered in the permitting process when applied to the Hanford Site. A brief summary of the intent and implementing regulations for these two statutes follows.

1.1.1 Resource Conservation and Recovery Act

The objective of RCRA is to ensure that hazardous waste is handled in a manner that protects human health and the environment. This includes primarily preventing releases of hazardous waste to the environment from active facilities that generate, transport, and treat, store, and/or dispose of hazardous wastes. However, as subsequently amended by the Hazardous and Solid Waste Amendments (HSWA), RCRA also provides for corrective action for releases to the environment from RCRA regulated facilities regardless of the time of a release.

The U.S. Environmental Protection Agency (EPA) has granted Washington authority to implement its own dangerous waste management program in lieu of the federal RCRA program. The Washington State Department of Ecology (Ecology) is authorized under state law (RCW 70.105.130) to implement the state program, which is at least as stringent as, and in some instances more restrictive than, the federal program.

The following laws and regulations define the requirements that must be followed: *Hazardous Waste Management Act* (HWMA); *Dangerous Waste Regulations* (*Washington State Administrative Code* (WAC) Chapter 173-303 WAC); *Model Toxics Control Act* (MTCA); the *Hanford Facility Dangerous Waste Permit* currently in place (current permit); and the *Hanford Federal Facility Agreement and Consent Order* (HFFACO), also known as the Tri-Party Agreement (TPA) (HFFACO, as amended).

For purposes of RCRA, the WAC defines "dangerous waste" as those solid wastes designated in WAC 173-303-070 through WAC 173-303-103 as dangerous, hazardous, extremely hazardous, or mixed waste (a dangerous waste that contains radioactive components). With regards to the Hanford Facility, Chapter 173-303 WAC covers those areas of the Facility that have been used for management of RCRA hazardous waste after November 19, 1980 [40 CFR Part 261]; state-

only dangerous waste, after March 12, 1982 [WAC 173-303-040]; and mixed waste after November 23, 1987 (DOE-RL, 1996).

Cleanup activities at the Hanford Site also include radioactive waste, which falls under the jurisdiction of the *Atomic Energy Act* (AEA).

1.1.2 Comprehensive Environmental Response, Compensation, and Liability Act

The objective of CERCLA is to investigate and clean up releases of hazardous substances, including releases and potential releases from historical activities. CERCLA, as subsequently amended by the *Superfund Amendments and Reauthorization Act* (SARA), is implemented by EPA through the Code of Federal Regulations (CFR) Part 300.

CERCLA is a more comprehensive statute than the RCRA in terms of types of wastes covered. CERCLA hazardous substances encompass RCRA hazardous wastes, as well as other toxic pollutants regulated by other statutes (e.g, the Clean Air Act [CAA], Clean Water Act [CWA], and the Toxic Substances Control Act [TSCA]). In contrast to CERCLA, RCRA authority does not extend to radionuclides. Where relevant, the Draft Permit includes information regarding treatment, storage, or disposal of radioactive source, byproduct material, special nuclear material (as defined by the AEA), and/or the radionuclide component of mixed waste. However, it is not included for the purpose of regulating the radiation hazards under either the current permit or the Draft Permit (when finalized and re-issued); or Chapter 70.105 RCW; or Chapter 173-303 WAC.

1.2 Hanford Federal Facility Agreement and Consent Order

RCRA, as implemented through Chapter 173-303 WAC, and the CERCLA regulations, as implemented through 40 CFR Part 300, overlap in several areas that address cleanup of releases to the environment. In particular, each requires either corrective or remedial action for releases regardless of the time of release.

To develop a coordinated approach to achieving the Hanford Site's cleanup mission, USDOE, the EPA, and Ecology (Tri-Parties) signed the original HFFACO (also known as the Tri-Party Agreement) in 1989, near the beginning of the Hanford Site's cleanup mission. Since its initial issuance, the HFFACO has served as the framework for implementing the many environmental regulations that apply at Hanford. Where these regulations cannot be fully complied with at the time they became applicable, a compliance schedule requiring actions to be completed by a certain date, is entered into Appendix D of the *HFFACO Action Plan*. The *HFFACO Action Plan*, as an enforceable part of the HFFACO, provides the methods and procedures, and establishes the plans for: (1) compliance, permitting, and closure under RCRA and HWMA; and (2) cleanup of the Hanford Site under RCRA and CERCLA corrective and/or remedial action provisions.

The HFFACO was originally designed as a "living document," subject to modification (using a change control process) as cleanup work proceeded. This approach provided the regulatory flexibility needed to carry out cleanup work in a manner that minimizes regulatory overlap and duplication of oversight efforts, and maximizes productivity. Modifications of the HFFACO reflect dialogue among the Tri-Parties with Hanford's diverse interest groups, which include such entities as Tribal Nations, State of Oregon, Hanford Advisory Board, Natural Resources Trustees, stakeholders, and the public.

The HFFACO's objective of coordinating compliance between the RCRA and CERCLA regulations is met primarily by defining waste site categories and cleanup processes, and by assigning a lead regulatory agency. These three aspects are addressed in the following text.

1.2.1 Waste Site Categories

The seven waste site categories discussed in this section include the following:

- RCRA Facility
- Treatment, Storage, And/Or Disposal (TSD) Unit
- Dangerous Waste Management Unit (DWMU)
- Solid Waste Management Unit (SWMU)
- Operable Unit (OU)
- Past-Practice Unit
- Inactive Portion of the Hanford Facility.

1.2.1.1 Resource Conservation and Recovery Act Facility

The original HFFACO established the Hanford Site as a single "RCRA Facility," the Hanford Facility. The boundary of the Hanford Facility currently encompasses 37 TSD units (several other TSD units have already been cleaned up and removed from the permit).

1.2.1.2 Treatment, Storage, and/or Disposal Unit

A "TSD unit" is a RCRA term referring to an area within the boundary of the Hanford Facility used for the treatment, storage, and/or disposal of hazardous waste, and is required to be permitted and/or closed pursuant to RCRA/HWMA requirements and as determined in the *HFFACO Action Plan*. The boundary of a TSD unit may encompass more than one DWMU. Any DWMUs contained within this boundary are addressed in the description of that TSD unit.

1.2.1.3 Dangerous Waste Management Unit

A "DWMU" is a contiguous area of land on which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area. Examples of DWMUs include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed [WAC 173-303-040].

1.2.1.4 Solid Waste Management Unit

The term "SWMU" means any discernable location at a RCRA Facility, as defined for the purpose of corrective action, where solid wastes have been placed at any time, irrespective of whether the location was intended for the management of solid or dangerous waste. Such locations include any area at the Hanford Facility at which solid wastes, including spills, have been routinely and systematically released. Such units include regulated units as defined by WAC 173-303-040.

1.2.1.5 Operable Unit

The term Operable Unit (OU) refers to a discrete portion of the Hanford Site containing a group of waste sites placed together for the purposes of doing a cleanup investigation and action. The primary criteria for placement of a waste site within an OU includes geographic proximity, similarity of waste characteristics and site type, and the possibility for economies of scale.

1.2.1.6 Past-Practice Unit

A Past Practice (PP) unit is one where wastes have been disposed (intentionally or unintentionally), and that is not subject to regulation as a TSD Unit. The Hanford Site has been in operation since the mid-1940's. These operations have resulted in more than 1,000 PP units that must be investigated and, if necessary, cleaned up. The majority of the PP units on the Hanford Site contain mixed waste. The remaining units either contain only radioactive waste or hazardous waste or are considered non-radioactive and non-hazardous. A large percentage of

these units are either solid waste burial grounds or liquid disposal units, such as cribs, ponds, and ditches. The groundwater beneath the Hanford Site has been contaminated as a result of the operation of TSD and PP units.

A CERCLA PP (CPP) unit is one that has received hazardous substances, as defined by CERCLA, irrespective of the date such hazardous substances were placed at the units.

A RCRA-CERCLA PP (R-CPP) unit is one where RCRA hazardous waste or constituents from sources other than TSD units have been released. This includes single-incident releases at any location on the Site and corrective action beyond the Site boundary. Releases of CERCLA hazardous substances would also be addressed. The releases would be addressed using both the state HWMA corrective action program and CERCLA authority and process.

1.2.1.7 Inactive Portion of the Hanford Facility

The "inactive portion" of the Hanford Facility is those areas not located within the boundaries of a TSD unit, a SWMU, or an OU.

1.2.2 Cleanup Processes

The two cleanup processes discussed in this section include the following:

- *Comprehensive Environmental Response, Compensation, and Liability Act* Past-Practice (CPP) process
- *Resource Conservation and Recovery Act-Comprehensive Environmental Response, Compensation, and Liability Act* Past-Practice (R-CPP) process.

Either the CERCLA remedial action (CPP) process, or both the RCRA corrective action and CERCLA remedial action processes (R-CPP) will be used for the OUs. Under either process, the contamination at an OU will be investigated and alternatives studied for cleaning up the problem.

1.2.2.1 Comprehensive Environmental Response, Compensation, and Liability Act Past-Practice Process

The term "CPP process" refers to a process by which an OU containing waste sites contaminated with hazardous substances will be addressed for investigation and cleanup (remedial action). Those Hanford Site OUs subject to the CPP process are listed in Appendix C of the *HFFACO Action Plan*.

1.2.2.2 Resource Conservation and Recovery Act -Comprehensive Environmental Response, Compensation, and Liability Act Past-Practice Process

The term "R-CPP process" refers to a process by which an OU containing waste sites contaminated with hazardous wastes or hazardous substances will be addressed for investigation and cleanup (corrective action) (*HFFACO Action Plan*). Those Hanford Site OUs subject to the R-CPP process are listed in Appendix C of the *HFFACO Action Plan*.

1.2.3 Lead Regulatory Agency

Either the EPA or Ecology will be the lead regulatory agency for each OU or TSD unit, as well as for compliance schedule milestones.

Many of the RCRA disposal units on the Hanford Facility scheduled for closure are located in close proximity to CPP units. The following criteria, included in the *HFFACO Action Plan*, were developed to assign a lead regulatory agency for an OU, TSD unit, or a compliance milestone:

- The EPA will generally be the lead regulatory agency when the OU, TSD unit, or compliance schedule milestone involve:
  - OUs that contain no TSD units or that contain low-priority TSD units.

    - OUs that contain primarily CERCLA-only materials.
- Ecology will generally be the lead regulatory agency when the OU, TSD unit, or compliance schedule milestone involve:
    - OUs that consist of major TSD units, with limited PP units.
    - OUs that contain higher priority TSD units and lower priority PP units.
- Ecology will generally be the lead regulator agency for all TSD units.

In some cases, the above criteria may overlap, such that either the EPA or Ecology could be assigned as the lead regulatory agency. However, the Tri-Parties agree that for groundwater contamination, whether currently regulated under RCRA/HWMA or CERCLA, CERCLA authority may provide the most efficient means of selecting remedies for groundwater plumes originating from a TSD unit or an OU. Ecology does retain the right to enforce timely cleanup of groundwater contamination that is associated with TSD units as provided under its RCRA/HWMA authority.

Regardless, the HFFACO establishes the expectation that either a RCRA/HWMA or a CERCLA cleanup will satisfy the requirements of both laws. In either case, Hanford cleanup of waste sites will be protective of human health and the environment and consistent with AEA requirements, when radioactive contamination is involved. The HWMA incorporates the state's *Model Toxics Control Act* (MTCA) regulations. Additionally, MTCA substantive standards may be considered for CERCLA cleanup actions. The HFFACO states that the cleanup process selected for a CERCLA waste site shall be sufficiently comprehensive to satisfy the technical requirements of both authorities and their respective regulations.

Currently assigned lead regulatory agency designations are shown in Appendix C of the *HFFACO Action Plan*. The EPA or Ecology will be responsible for the successful completion of activities or compliance milestones related to their assigned TSD unit, or OU, ensuring that all applicable requirements are met. However, the EPA and Ecology retain their respective legal authorities.

2 PERMITTING FRAMEWORK

This section contains an overview of the following topics that apply to the dangerous waste permitting framework for the Hanford Facility:

- Purpose and Terminology
- Current Permit
- Draft Permit
- Permit Re-Issuance

2.1 Purpose and Terminology

This section contains a discussion of the purpose of the current permit and Draft Permit, as well as basic permitting terminology.

2.1.1 Purpose

The primary purpose of a dangerous waste permit for the Hanford Facility is to provide authorization from Ecology to allow the USDOE and its contractors (i.e., the Permittees) to perform waste operations [WAC 173-303-040]. These operations provide critical support to the Site's cleanup effort. As such, the Draft Permit, when finalized and re-issued, must work in coordination with the HFFACO and other regulatory documents (e.g., those supporting CERCLA, CAA, CWA, and TSCA).

2.1.2 Terminology

This section contains a discussion of basic permitting terminology relevant to a discussion of the current permit and Draft Permit.

2.1.2.1 Conditions

Within a dangerous waste permit, conditions establish requirements for conducting operations in a manner protective of human health and the environment. Also included are conditions that document requirements for closure after operations have ceased, and conditions that document how cleanup of unauthorized releases of waste is to be conducted. Some conditions establish compliance schedules, and/or use information from other documents.

Compliance Schedules

The current permit contains compliance schedules to address those regulatory requirements that the Permittees cannot fully comply with when these requirements became effective. Permit conditions make use of such schedules under the authority of WAC 173-303-815(3)(b); WAC 173-303-815(3); WAC 173-303-610(3)(a)(vii); and WAC 173-303-64620(3). Ecology incorporates the HFFACO schedules into the current permit by reference. This means if a schedule changes in the HFFACO, the change is incorporated without a formal process into the current permit. This same approach will be used when the Draft Permit is finalized and re-issued.

Enforceable Portions

A number of conditions within the current permit cite other documents. However, only those portions of these documents, as specified in the current permit, are considered enforceable (i.e., subject to enforcement actions and penalties if requirements are not met). The Draft Permit has also adopted this approach. As the primary purpose of this *Introduction* is to provide background information, it will not be considered an enforceable portion of the Draft Permit, when finalized and re-issued.

2.1.2.2 Administrative Record

An Administrative Record (AR) has been established for each TSD unit as specified by WAC 173-303-810. The purpose of the AR is to contain all of the documentation considered in the permitting of each unit. Such permitting documentation, also discussed in the next section, includes a Part A permit application and, depending of the status of the unit, a Part B permit application, closure plan, closure/post-closure plan, and/or post-closure permit application. The current permit and Draft Permit are based on information contained in these documents, as well as other relevant information entered into the AR. An AR has also been established for the permit as a whole which contains documentation that is not specific to TSD units.

2.2 Current Hanford Facility Dangerous Waste Permit

The initial HFFACO and the requirements of WAC 173-303 established the permitting framework for the Hanford Site. The permitting steps leading to the current permit and Draft Permit are briefly described below.

2.2.1 Interim Status Permit

The Hanford Site was addressed as a single RCRA Facility (EPA/State Identification Number WA 7890008967), which included over 50 TSD units. Prior to the issuance of the permit in 1994, Hanford Site TSD units operated under interim status—a status provided for under RCRA, which grants a Facility the right to continue to operate in accordance with applicable RCRA or state regulations until a RCRA final status permit is issued.

2.2.2 Final Status Permit

The original HFFACO also established a stepwise permitting process that provided for the issuance of an initial, final status RCRA (Dangerous Waste) Permit for less than the entire Hanford Facility. Any TSD unit not included in the initial Permit, which became effective in 1994, was to be incorporated through a permit modification process (a change control process defined in WAC 173-303-830). This process was initiated by the submittal of a Part B permit application, closure plan, closure/post-closure plan, and/or post-closure permit application in accordance with WAC 173-303-610, -803, -806, and a milestone schedule set forth in Appendix D of the *HFFACO Action Plan*. The TSD units not yet incorporated into the original Permit were to continue to operate under interim status requirements WAC 173-303-400. Subsequent amendments of the HFFACO have retained the RCRA permitting framework established in 1989.

2.2.3 "Life Span" of Current Permit

The current permit, the first Hanford Facility final status permit, was issued in 1994, with the maximum ten-year "life span" allowed by federal law [42 United States Code [U.S.C.], Chapter 82, Subchapter III, Section 6925(c)(3)] and by Chapter 173-303 WAC [WAC 173-303-806(11)]. However, Chapter 173-303 WAC [WAC 173-303-806(7)] allows a Facility to continue operation under an expired permit if the Facility has submitted an application for renewal of the permit at least 180 days before expiration of the existing permit. Because of the complexity of the regulatory arrangement within which a new permit must be issued and the technical complexity of the Hanford cleanup effort, Ecology anticipated that a longer timeframe would be required for the development of this new permit. Thus, in accordance with the Ecology regulations, the current permit will stay in effect until it is revoked and a new permit is issued (termed "re-issuance" in the case of the finalized Draft Permit). Public review of this Draft Permit is a key step leading to permit re-issuance.

2.3 Draft Hanford Facility Dangerous Waste Permit

This Draft Permit is organized into the following components:

- Parts
- Attachments
- TSD Unit Permits
- Addenda
- Appendices

Each of these components is briefly described in the text that follows.

2.3.1 Parts

The Draft Permit is organized into six parts, described as follows:

2.3.1.1 Part I, Standard Permit Conditions

Part I has permit conditions that are required to appear in all dangerous waste permits, and includes those necessary to address the contents of WAC 173-303-810. Along with these standard conditions, related conditions also appear in Part I.

2.3.1.2 Part II, General Facility Conditions

Part II has conditions common to all incorporated TSD units and the DWMUs within their boundaries. All Facility dangerous waste management activities, requirements, and instructions, established under WAC 173-303-815, apply (other than those established in Part I under WAC 173-303-810 as part of WAC 173-303-815(2)(a)).

Condition II.Y addresses the overall framework for corrective action for releases from SWMUs. Corrective action conditions specific to releases from particular SWMU's, not addressed through the HFFACO, are included in Part IV.

2.3.1.3 Part III, Operating Treatment, Storage, and/or Disposal Unit Conditions

Part III has conditions that apply to individual, operating TSD units. Each operating TSD unit incorporated into Part III is subject to the unit-specific conditions of this Part, as well as to the applicable conditions of Parts I and II. Part III also includes conditions that specify requirements for closure and post-closure care, maintenance, and monitoring of a TSD unit, if applicable.

2.3.1.4 Part IV, Corrective Action Unit Conditions

Part IV has conditions that apply to releases from SWMUs. As previously discussed in Sections 1.2.1 and 1.2.2, most such units and areas are identified in Appendix C of the *HFFACO Action Plan* as either CPP or combined R-CPP units. For these CPP and R-CPP units, the corrective action conditions are structured around, and rely on, the investigation cleanup requirements in the HFFACO. For TSD units identified in the HFFACO, the corrective action conditions contemplate use of the RCRA closure and post-closure processes to satisfy corrective action.

2.3.1.5 Part V, Closure Unit Conditions

Part V has conditions that apply to TSD units that are closing. These TSD units, subject to the closure requirements of WAC 173-303-610, are not in Part III of the Draft Permit.

Some TSD units in Part V cannot meet the minimum standards of WAC 173-303-600. In these cases, Ecology has grouped closure requirements for related TSD units. The TSD units in Part V are subject to the applicable conditions of Parts I and II, as well as, unit-specific conditions in Part V.

The TSD units that cannot close by removal or decontamination are subject to post-closure care, maintenance, and monitoring requirements. In these cases, Ecology eventually will move such units from Part V into Part VI for long-term post-closure care and monitoring.

2.3.1.6 Part VI, Post-Closure Unit Conditions

Part VI has conditions for TSD units that are not in Part III or Part V. These TSD units have closed with waste in place and are subject to post-closure care, maintenance, and monitoring requirements. Post-closure requirements for related TSD units are grouped. The TSD units in Part VI are subject to applicable requirements in Parts I and II, as well as, unit-specific requirements in Part VI.

2.3.2 Attachments

Attachments are documents that generally provide support to broad categories of conditions in the Draft Permit (e.g., Facility emergency plan, personnel training, recordkeeping, security, and permit history). However, only those portions of the attachments specified in Parts I through VI are enforceable conditions of the Draft Permit and subject to permit modification requirements specified in WAC 173-303-830(2), (3), and (4). The attachments are included in the Draft Permit.

2.3.3 TSD Unit Permits

TSD Unit Permits are incorporated into Parts III, V, or VI. Past Practice and Solid Waste Management Units (SWMU) are incorporated into Part IV.

2.3.4 Addenda and Appendices

Parts III through VI include addenda for each TSD unit incorporated into the Draft Permit. These addenda reference applicable conditions in Parts I and II, and establish conditions specific to each TSD unit. Some addenda references several appendices, which include pertinent documentation (e.g., TSD unit-specific permit applications). However, only those portions of the appendices specified in Parts III through VI are enforceable conditions of the Draft Permit and subject to permit modification requirements specified in Condition I.C.3, when this draft is finalized and re-issued.

2.4 Permit Re-Issuance

This Draft Permit is currently in the "Public Comment" period. [WAC 173-303-830 and -840]. During the public comment period, any person or entity (e.g., the Permittees) are entitled to submit comments to Ecology. Due to the impact on Hanford Site cleanup, "public hearings" will be held, before a "response to comments" is completed. A "comment response document" will be issued by Ecology, along with a revised Draft Permit, incorporating those comments, which have been accepted.

Upon re-issuance of the revised Draft Permit, Permit conditions may be appealed in accordance with WAC 173-303-845. In the event that any person or entity challenges a permit condition, Ecology may stay that condition as it pertains to the Permittees (i.e., delay imposing this condition until resolution is reached between Ecology and the challenging person or entity). If such a stay is granted, it will constitute a "stay by the issuing agency" within the meaning of RCW 34.05.550.

This Draft Permit, when finalized, will be re-issued by Ecology to the USDOE and its contractors, referred to collectively as the Permittees. More specifically, these eight Permittees consist of two USDOE organizations, each referred to as an "Owner/Operator," and six contractors (listed in alphabetical order), each referred to as an "Operator:"

- USDOE, Richland Operations Office (USDOE-RL)—Owner/Operator
- USDOE, Office of River Protection (USDOE-ORP)—Owner/Operator
- Bechtel National, Inc. (BNI)—Operator
- CH2M Hill Plateau Remediation Company (CHPRC)—Operator
- Mission Support Alliance, LLC (MSA)—Operator
- Pacific Northwest National Laboratory (PNNL)—Operator
- Washington Closure Hanford, LLC (WCH)—Operator
- Washington River Protection Solutions, LLC (WRPS)—Operator

For purposes of corrective action under Condition II.Y, the "Permittees" include only the two Owner/Operators—USDOE-RL and USDOE-ORP.

With the exception of those which are stayed, the Permittees will comply with all terms and conditions of the Draft Permit, when finalized and reissued, as well as the enforceable portions of the Permit's Attachments, Addendums, and Appendices. The Permittees will also comply with all other applicable state regulations. This includes the generator and transporter requirements of Chapter 173-303 WAC. If the Permittees become noncompliant with any permit terms and conditions or enforceable portions of the Attachments, Addendums, and Appendices, not stayed, they could be subject to the violation and enforcement provisions of WAC 173-303-950.

This page intentionally left blank.